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Illinois state penitentiary
--Menard branch

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Mechanical operation of
a prison

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MECHANICAL OPERATION OF A PRISON

*PROGRESS-EFFICIENCY-ECONOMY
REFLECTED*

IN SERIES OF ARTICLES WRITTEN BY
FRANK J. GEPPERT

REPRINTS FROM THE
MENARD TIME

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**MENARD DIVISION
ILLINOIS STATE PENITENTIARY
MENARD ILLINOIS**

1935

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FOREWORD

The series of articles contained in this booklet appeared in the Menard Time, prison publication, and were written with the view of informing those interested, in some of the detail of the Mechanical Operation of a Penal Institution, such as we have here at Menard, also directing their attention to the scope of improvements that have been accomplished in the past two years.

While the operating expense of the Menard Prison, from July 1, 1933 to July 1, 1935 was \$311,568.81 less than the cost of operation from July 1, 1931 to July 1, 1933, the prison presents a much improved appearance. The buildings are all in first class condition; a number of new buildings have been erected; food is better cooked and larger quantities served; inmate wearing apparel is kept in better condition, and the morale of the prison population much better.

Much favorable comment followed the appearance of this series of articles, so much so, that it was decided that reprints of each article be made, and the lot be compiled into a booklet, for distribution among those interested.

Frank J. Geppert



MECHANICAL OPERATION AND MAINTENANCE OF A PRISON

By Frank J. Geppert, Master Mechanic

Visualize a thriving little city of some 3,000 population, owning and operating all of its public utilities, independent of outside sources of supply, each of the separate units grouped into a single, compact organization, maintained, operated and directed entirely within its own organization, and you will have some idea of the scope of activity incidental to the mechanical operation of a model prison, such as the Menard Branch of the Illinois State Penitentiary.

This institution is a municipality within itself, with an approximate population exceeding 3,000, and covering an area of some 1600 acres, fronting the Mississippi River. It is entirely modern and embodies all such modern improvements as one usually finds in a small city of similar population.

In conducting this imaginary tour through this prison, in order to enlighten those of you who join the party as to its mechanical operation, we deem it proper that you first visit the office of the Master Mechanic, for it is from this office that operations and maintenance are controlled.

All material and mechanical equipments are requisitioned through this office. As all supplies for this institution are purchased quarterly, it is necessary for the Master Mechanic, each quarter, to compile what is known as a "Quarterly Requisition" including there in an itemized list of all materials and equipment needed for the succeeding three months. This list has to be properly classified as to specifications, and the

cost of each item estimated. All additional materials, whose need for same could not be anticipated, are made on emergency purchases by this office. Invoices covering all mechanical materials are routed through this office and carefully checked as to conformity with specifications, prior to passing for issuance of vouchers.

An accurate check is maintained on operation and production at all times by chart recording devices. These charts are filed with the Master Mechanic each day, enabling him to keep accurately informed as to operating and daily routine in each unit. Plans for any contemplated improvements in the mechanical operation of the institution are formulated in this office, and when definitely decided upon, complete instructions are then issued to the department charged with the actual performance of the work, as to the nature of the work and the manner in which it is to be done.

We step through a rear door in the Master Mechanic's office, and find ourselves standing in the building, in which is housed all of our industrial shops. Included in this group are the following: Carpenters, Cabinet Makers, Blacksmith, Machinist, Electricians, Welders, Structural Steel workers, Steam Fitters, Auto Mechanics, Brick Layers and Plasters, each of which is operated as a separate unit, and in charge of an officer, selected for his special knowledge and experience in his particular line. More than 200 inmates are assign-

ned to these various shops, most of whom are skilled craftsmen. It is possible to find among these men almost any kind of artisan, some are real artists and highly efficient in the performance of their duties.

Our next point of call shall be the Boiler House and Engine Room; Four 350 H. P. Kroeschell Boilers which consume approximately a carload of coal each day, and are automatically stoked; each of which produces 250,000 lbs. of steam daily, providing the steam necessary to operate our power units, heat the buildings comprising the prison group and providing sufficient steam to do all the cooking in the main prison kitchen, also hot water for the entire institution. These boilers operate continuously 24 hours each day and furnish employment for more than 50 inmates.

Next door to the Boiler House, is the Power Plant, in which is installed One 750 H. P. Chuse, Compound (cross) Engine, One 125 H. P. Chuse, Single Type Engine, One 400 H. P. Ideal Engine and One 150 H. P. Ideal Engine, also a Switchboard of 1040 K. W. capacity, direct current, and one of alternating current with 750 K. W. capacity, giving us a total capacity of 1790 K. W. The institution consumes, on an average 4,000 amperes each 24 hours. A day and night crew man this power plant.

Continuing, we next visit our five ton Ice Plant, and adjoining this, the prison cold storage is located, in which all perishable foodstuffs are preserved. Our present ice plant and cold storage facilities are entirely inadequate for our present need. A new one is contemplated, and construction will start in the near future.

A complete water works system is maintained, the source of supply being the Mississippi River. The river water is drawn in by means of an intake pump, located in a brick tower especially built for that purpose, thence pumped to our modern and complete filter plant, where all contamination is removed and the water made fit for consumption. It is then distributed throughout the system. The total capacity of our water works is 850,000 gallons of water each 24 hours. Daily laboratory tests are

made and then forwarded to Springfield for confirmation.

An adequate sewerage system is maintained, necessitating the presence of a maze of tunnels and underground ducts, all of which requires constant supervision and care.

The prison owns and operates its own telephone system, which provides its communication with all points on the prison reservation. Service is maintained, night and day, with an inmate on duty at the switchboard.

For the amusement and entertainment of the prison population, a complete R. C. A. Talking Picture Unit was installed in the prison chapel, which has a seating capacity of 1000, also a public address system, with 35 loud-speakers scattered throughout the cell blocks and in the main dining hall. Radio reception is provided, and the playing of phonographic records is permitted, also a microphone is included in the system.

In addition to the major mechanical features that have been pointed out, this department has the mechanical supervision of the various industries operated by the prison, such as Rock Quarries, Dust Mills, Knitting Mills and Tailor Shops. Our department also provides power, light and water for the Security Hospital, which is located adjacent to the prison.

In succeeding issues of this paper I shall take you into each department and attempt to describe, in detail, the activities of such departments. I shall also endeavor to convey to the reader my policy in creating an incentive for those inmates, assigned there, to take advantage of the opportunities available and prepare themselves for the time when they once again take their place in society. A general description of the scope of the activities here at the prison should be informative to those taxpayers interested in economical operation. At all times, I have attempted to impress upon those in authority, the responsibility of their position, and the duty toward those working under them, at the same time endeavoring to impress on each employee, the value of strict discipline and fair dealing.

WATER WORKS AT MENARD

By Frank J. Geppert, Master Mechanic

In our first issue of "Menard Time", we gave our readers a general outline of the department controlled from the office of the Master Mechanic. To completely cover a subject so broad in scope as the Mechanical department, it will be necessary to run a series of articles giving more detailed explanation of the various units.

In this issue, we want to tell you about WATER, in such a way that all will understand, omitting unnecessary technical terms, and giving just enough detail to give our readers a comprehensive understanding of how a modern water works operates, and the importance attached to it.

Good water, for drinking purposes, has doubtless been appreciated by the human race from time immemorial, for it does not take a very high degree of intelligence to discriminate between a clear colorless and odorless drinking water, and one that does not possess these outwardly attractive physical properties. Among primitive people the question of water supply, was never of pressing importance except in certain regions, but population became more dense and as people began to congregate in cities, larger volumes of water became urgent.

History informs us, that as late as 150 A. D., in the city of Paris, only one quart of water per person was used per day, we can imagine what sanitary conditions must have been. Here in the prison, the water consumption is in excess of 100 gallons per person, each of whom seems like a very large amount of water, but water is the essence of life, and it is generally conceded that

the average length of life is considerably higher than in the days when its use was limited.

In making this imaginary tour through our water works, we want to impress you with the care and precaution exercised by inmates, to bring you water that is palatable, free from contamination and bacteria. Polluted water is the direct cause of Typhoid, Dysentery, and other intestinal ailments.

The Mississippi River is used as a discharge for sewage and waste material from all the cities located along its banks. This condition affords ample opportunity for disease producing organisms to enter the source of our supply, and the diseases heretofore mentioned, which are peculiar to the intestinal tract of the human body, are the ones most likely to be disseminated in consequence of this common practice.

Starting our tour at Chester, Illinois, where our intake tower is located, we take you down several flights of steps, almost to the bottom of the river, where we have two (2) large, centrifugal pumps, connected direct to a 40 H. P. electric motor, capable of pumping a million gallons of water a day. These electric motors are driven with current furnished by the prison power plant. There are three (3) inmates assigned to this unit, each working an 8 hour shift. The only purpose of the intake tower is to draw the water from the river and then pump it to the purification and filter plant, which is located more than a mile up the river, and fronting the prison proper. It is here that we remove foreign and polluting substances from solution and suspen-

sion in the water. The character and amount of these impurities, and the reason for which their removal is undertaken naturally leads us to an explanation of the treatment administered. As the muddy water is pumped from the intake tower, it empties into a compartment, arranged with a series of baffles; this incoming stream of water is purged with a solution of Sulphate of Alumina (alum). The alum is purchased in lump form and dissolved in water in especially designed agitators, from which it flows thru a set of valves which automatically control the amount necessary to clarify the water. Of course, the muddier the water, the more alum is required. This operation requires constant attention, as the condition of the water changes very often, and we are careful not to inject any more alum than is absolutely necessary. The process just described is called coagulation and is the first step in water purification. From the baffle compartment, the water runs into a series of settling basins, whose only function is to settle the water. Laboratory tests show that the settled water has considerably less bacteria than when the water was taken from the river.

We now enter the filter plant, which takes the water from the settling basins into the filtering basin. The filter acts in the first place as an exceedingly fine strainer, taking out nearly all suspended matter. The filter sand serves as a resting place for great numbers of organisms that grow and develop and take part in the purification of the passing water, this is one of the most important elements in the results that are secured. But still the water is not safe to drink. After the water leaves the filter, CHLORINE is applied to the water, primarily for the purpose of bacteria removal. We do not, however, make any effort to reduce the bacteria to the lowest possible number, since this procedure might require too great

amount of Chlorine, which would increase the cost, without rendering the water much safer from a sanitary standpoint. Taste and odor must also be considered, both of which are materially effected by the excessive use of chlorine.

As the water leaves the filter plant it empties into a large underground reservoir, known as the "Clear Well" which is constructed of reinforced concrete, and has a capacity of a half million gallons. From here the water passes thru an 8 inch main to the pumping station. The building which houses the pumping station, years ago before the installation of the filter plant, was used to pump water direct from the river to the reservoir, for settling. This water, of course, was not safe for drinking purposes, and was only used for washing and cleaning. Drinking water in those days, was procured from a well located adjacent to the north cell house which is now abandoned.

Returning to the pumping station, we descend some thirty feet, where two large Triplex reciprocating pumps are installed, each driven with a 50 H. P. electric motor. These pumps have a capacity of a million gallons each per hour. The water, which flows by gravity from the clear well, which has heretofore been described, is then picked up by the pumps and forced into a large reservoir, located on the hill east of the prison. This reservoir has a capacity of a million and half gallons. Large mains convey the water to the prison proper and the prison farms, where it is then distributed throughout the buildings.

No attempt will be undertaken to describe the maze of underground piping necessary to supply the several thousand faucets and other openings.

Mr. Clint Davis, who has the supervision of the plumbers, pipe & steam fitters, has 12 inmates in his department whose duty it is to maintain the distribution of the water. Economy is

watchword, and he is to be commended for his vigilance in handling a system of this kind. Mr. Marvin White is in charge of the mechanical operation and upkeep of the system.

We would now like to take you to our hospital, in which is located our modern laboratory, in which a daily analysis of the drinking water is made. Samples from which these tests are made, are daily procured from the following sources, viz; from the river, the filter, the clear well and one from some faucet, in the prison. Each day a sample is taken from a different faucet in the prison. The result of this analysis is entered into a written report which comes to the Master Mechanic daily. At the end of the month these daily reports are the basis upon which a monthly report is compiled, in which is reflected the exact condition of our water at all times, and forwarded to the Department of Public Health, in Springfield, for their information. This concludes our tour of the water works.

We all remember the nation wide drought of last summer, when almost every point experienced trouble with their water supply. This institution did not escape, at times the situation was alarming; there were times when we were completely out of water. This was caused by the unprecedented drought coming just at a time when we were right at the peak in our water con-

sumption. It was found necessary to install a new intake pump, as the river had reached such a low level that our old equipment would not suffice. The new pump remedied our troubles for the time being, and we considered ourselves fortunate that a serious epidemic of disease did not result. It is unquestionably "True Economy" to provide an adequate supply of water, at all times, so as to maintain proper sanitary facilities, and an ample supply for drinking purposes. Much thought is given in guarding against waste of water.

With the facilities we now have, it has been possible to provide an adequate supply of water, however, upon the completion of the new cell block, at which time our population will be materially increased, additional filters, settling basins and pumps will have to be provided. This additional equipment has been recommended for purchase, and no doubt allowed.

Our entire water works system is operated by trusted inmates, under the supervision of the Master Mechanic. These jobs are considered very desirable, by the inmates, due to the privileges that are allowed those holding them. It is our policy to place only such inmates that have proved themselves worthy, and whom we feel are responsible, on these jobs. This type of inmate is always given preference in the matter of assignments.

CONSTRUCTIVE ECONOMY REFLECTED IN 1934 IMPROVEMENT PROGRAM

By Frank J. Geppert, Master Mechanic

The past year was a busy period for the Mechanical Department of this Institution. Much was accomplished in the way of new construction, and the reconditioning, modernizing, and improving the buildings and equipment of the various units comprising the Menard Branch of the Illinois State Penitentiary, all of which, has contributed materially to the welfare and comfort of the officials and inmates, and added much to the general appearance of the prison.

Warden Ragen, while an ardent supporter of Governor Horner's "Economy Program," has proven himself extremely resourceful in accomplishing much, with little to work with. Working under his direction, the Mechanical Department was able to carry to a successful conclusion a fairly extensive building program the past year. This department is proud of its accomplishment, and it is believed that the readers of the *MENARD TIME* would be interested in being informed as to just what was done in 1934.

Soon after the beginning of the year, a substantial brick annex, to the farm slaughter-house, was erected. This work was done entirely by prison labor, under supervision of officers attached to the Mechanical Department. Brick used in the construction were salvaged and all lumber was cut at the prison saw mill. When this annex was completed, the prison was provided with a commodious abattoir, ample in facilities to handle the slaughtering of all hogs and cattle killed for the prison meat supply.

Immediately following the completion of the slaughter-house annex, work was started on a series of Hot Beds to be used for the germinating of hot house plants. There were eight of these beds constructed, each of them being 75 ft. long, and when completed, they covered a plot of ground approximately one block square, and with the installation of modern equipment, have a capacity sufficient to furnish hot house plants for a 1200 acre farm. More than 100,000 salvaged bricks were used in the construction of this unit, and prison labor did the work, the total cost of which amounted to only a fractional part of what the cost would have been, had new materials been used. Trusted inmates operate this unit, and it is one of the show places of the institution.

The Yard Office building, which houses the office of the Deputy Warden, the Bertillon office and Execution Chamber, has long been totally inadequate in space. This was remedied by the construction of a two story brick annex and the re-arrangement of the floor space of the interior. New prison kilned brick was used, also most of the other materials going into this structure had been salvaged. When completed the entire building, inside and outside, was painted, new lighting fixtures installed, floors and walls decorated, the whole presenting a far different picture from that of the old, crowded, run down structure that it formerly had been.

From the viewpoint of those who only occasionally visit the prison, the most striking improvement in the general

appearance of the institution, was accomplished by tuck pointing and striping of all the buildings, inside the walls. This cost but little, but what a difference. One can hardly believe that the same old buildings are still standing.

A new brick Guard Tower, 40 ft., in height, crowned with a 50,000 candle power, revolving searchlight was constructed, at the head of the main prison street.

A new two story Band Stand was erected out on the athletic field. The upper floor arranged for the accommodation of the prison band, while playing at the athletic events, and the lower floor providing space for the visiting base ball players, and the prison team.

The farm dormitory which is a beautiful brick structure, situated on the prison farm, about one mile from the prison proper, and housing approximately 100 inmates was entirely repainted, inside. The kitchen and dining room of this building, were moved from the first floor, to the basement, so as to provide additional sleeping quarters for those inmates, formerly sleeping in the basement.

The Fort Gage farm house and barns were repaired and repainted. A new house was built adjacent to the old farm house, for the inmates. The old house is to be occupied by an officer and his family.

New flood gates were built for the 12 ft. storm sewer which precludes the re-occurring of past floods.

The Prison cemetery was enlarged, providing additional space for this unit.

The following buildings were repaired and newly painted, viz: South Cell House, the Officer's Kitchen and Dining Room, the Convict Kitchen, Canning Department, Officer's Quarters, Commissary, General Store, the Barber Shops, Warden's Apartments, Power Plant, Boiler House, inside Dormitory, Clothing House, and the interior of all the official's residences.

The old Mule Barn, located within the walls, was completely renovated and remodeled, so as to provide suitable quarters for Band Studio, house the new Tobacco Factory and Warehouse for mechanical and construction supplies. This building has been made 100% fireproof.

A Steel Trestle, 165 ft. long, was constructed for the inside Stone Crusher, so that increased facilities could be provided for that industry, in order that the busy Fall season might be properly taken care of. Salvage steel was used exclusively in the construction of this trestle, and entirely fabricated by inmate electric welders. The total cost of this structure did not exceed forty dollars. A similar trestle will be constructed for the outside Crusher, in the very near future.

A new brick Hog House and feed storage building was erected out at Fern Valley, part of the prison farm. This building is provided with concrete floors and roof. Salvaged brick were used. The building is absolutely fireproof. An additional hog house is contemplated.

Concrete Dipping Troughs were constructed at each hog house, so that all hogs can be dipped in special liquid, to eradicate lice and insects.

Two large concrete dams, reinforced with steel, were built on the farm, for the purpose of storing up water, coming from the hills, and others will be constructed as soon as the weather permits.

A new million gallon intake pump was installed at the Chester Pump House. This new pump was necessary on account of the increased demands made upon our water works system.

2,000 ft. of water main was installed, so as to supply the Hog House, east of the prison, with water. Rebuilt the chicken house, using salvage brick. Constructed a 12 ft. circular concrete water trough for cow barn. Built new

fence at cow barn, using salvage steel doors taken from North Cell House. Renovated old brick house on farm, converting same into suitable quarters for inmates. Installed the officer's laundry on the second floor of the laundry building.

One of the major improvements completed during the year, was the laying of approximately 500 ft. of 6 in. tile extending from the inside quarry pit, across the athletic field, thence to the main storm sewer. Heretofore, following any unusually heavy rain, the quarry pit would be flooded with several feet of water, making it impossible to do any work until this water was pumped out, which would take several days. Now, it makes no difference how heavy the rainfall, the quarry is immediately drained, and work is not interfered with.

A new Hot Well was installed, to receive the condensation from the steam lines. This well was equipped with an electric centrifugal pump also a vacuum return pump. This installation materially reduces the coal consumption at our power plant, and greatly increases the efficiency of the boilers.

A new 28 in. conveyor belt, 10 ply, 167 ft. long, with a carrying capacity of 110 buckets, was installed in the inside crusher.

We purchased and installed approximately one half mile track, with dump cars and locomotive, to handle the dirt from inside quarry. This improvement has greatly increased the production and materially lessened the cost of operations of our stone industry.

Of course, there were hundreds of minor repair jobs handled, in addition to those previously mentioned.

The same active program is outlined for 1935. Already definite plans have been decided upon for the rebuilding and increasing the capacity of our ice plant and cold storage. The capacity of our power plant and water works will be materially increased, which is due to the fulfillment of the new segregation program.

The following named men comprise the staff of the Mechanical Department of this institution, viz:

Mr. Frank J. Geppert,	Master Mechanic
" Oscar Marquardt,	Chief Electrician
" William Knowles,	" Carpenter
" Marvin White,	" Machinist
" Clint Davis,	" Plumber
" Joe Mongan,	" Mason
" Richard Probst,	Assistant Carpenter
" Walter Jacobs,	Shops
" Francis Bleem,	Labor
" Pat Ryan,	Power Plant
" Chas. Kenner,	Power Plant
" Ora Ray,	Electrician

(In addition to the regular staff numerous other officers were at one time or another assigned to this department for special work.)

Every detail of the work outlined in this article, was handled by the Mechanical Department, the efficiency of which is reflected in the finished job. Only by working in perfect harmony with each other, and the intelligent handling of the two hundred or more inmates assigned to the department, awakening in these men a desire to render faithful and worthwhile service, has the 1934 program been brought to a successful conclusion. The inmates are considerately treated, and made to understand that it is to their interest to conduct themselves in such manner as to win the confidence of those having them in charge.



STEAM PRODUCING UNIT

Menard Power Plant Modern And Efficient

By Frank J. Geppert, Master Mechanic

In this issue we will attempt to give our readers an idea of how our steam generating plant is operated and the important service it renders. It is a difficult subject to describe in such manner as will prove interesting to the average reader, as the generating of steam and combustion is a highly specialized field.

Steam boilers have been used for various services and in many forms since remote time. Prior to the 18th century none of the devices developed had any practical value. History informs us that steam boilers date back several hundred years before the Christian Era, however, their use for doing mechanical work was first recorded about 130 B.C., and was used with Hero's engine, which consisted merely of a hemispherical caldron, heated by placing a lamp under the water container. The evolution of the steam boiler is quite interesting when we consider the crude, odd type recovered from the ruins of Pompeii and those modern units in use today.

Did you ever observe a smoke stack on any boiler house, and though several boilers were in operation at the time, wonder why there was no smoke emitting from the stack? This is simple evidence that this particular plant is securing efficient combustion, and the maximum number of heating units are being extracted from the fuel fired in the boilers. The smoke problem is a source of constant worry and anxiety to the plant operator, as well as to the residents of the districts in which they are located.

Several years ago Menard was a vic-

tim of the smoke enigma. It wasn't the smoke so much, but the knowledge that such a blank volume was pouring forth, meant but one thing—most of the heating value of the fuel was going out of the stack.

The boilerhouse at that time was the most run down unit in the institution. Its interior was a jumbled mass of leaky fitting, delapidated, hand fired boilers, and wheezy pumps. How a plant in such a condition continued to supply the needs of the prison is still a mystery. All ailments must eventually reach a crisis, as did this one. The result was drafting of plans for a new and modern plant, and the year of 1929 saw the end of the old relic and the beginning of the new boiler plant that we have today.

Our present plant is modern in every respect, in both equipment and operation, comparing favorably with any of the similar units attached to big industrial plants anywhere.

We constructed a new Hot Well last year, and installed four pumps, 3 for pumping the return condensate from the Hot Well to the heaters in the boiler house, and one vacuum pump to speed up the return condensate from the system to the Hot Well.

Four big, automatic stoked, Kroeschell Boilers comprise the steam generating units. They are of the water tube type, with a combined rating 2,200 H. P., stoked by American chain grate stokers, generating 800,000 pounds of steam each 24 hours. Three of these boilers are in constant operation, one

always being kept for an emergency. Their work periods are alternated to allow for cleaning and minor repairs, and they are given a thorough overhauling twice a year. The tubes and shell, at such time, must be freed of scale, a constant menace to efficient steam production. This scale is caused by the mineral content of the water forming on the inner surface of the tubes and shell. Its formation acts as an insulator to the heat from the furnace and retards the generation of steam. As it thickens, the fuel demand must be increased, in order to break down its resistance.

Air plays a great part in economical combustion; we know that too much air or too little air will result in a waste of heat energy. This can be prevented by careful firing. We also know that we must constantly be on the alert for air leaks in our boiler settings. It will find its way through the cracks in the settings of the boiler, around door fittings, etc., this condition does not exit here at Menard. As soon as we detect that our boilers are not operating efficiently and combustion is off we immediately rectify the condition. A smoke stack, of brick construction, towers 177 ft. in the air, and adds materially to the operation of our boiler plant.

The only way that our plant could be operated more advantageously, would be for a higher grade fuel to be used however, the increase in cost of such fuel, would hardly warrant the change, for the small increase that would be gained. As it is now, we are well above the prescribed pounds of steam per pound of coal.

Our feed water heater is of the latest design, and in addition to heating the water for the boilers, it also filters same. The water is pumped into it from the hot well and the temperature raised to a point well above 200 degrees Fahrenheit. This is also a major factor in correct steam production. The nearer

the boiling point, the less the fuel demand to convert into steam. However it must be kept below the boiling point as much as two degrees, else there may be disastrous effects to the feed pumps which transfer it to the boilers.

These feed pumps are of the reciprocating type, and are equipped with automatic regulating valve, which assures an ample supply of water to the boilers. Their mechanism is so arranged that they keep the water at a desired level in the boilers at all times.

Flow meters register the amount of steam produced daily, in addition to giving the indicated H. P. of each boiler.

Recording instruments are provided to produce charts to accurately record how efficiently the coal that is being burnt. Draft in the furnace, draft in the uptake, flue gas temperature, and percentage of carbon dioxide. All of these charts are delivered each day to the office of the Master Mechanic, together with a report, showing the temperature of the water before it enters the boiler, the pressure carried, number of hours the boiler was in service, combustion data, the amount of steam produced, and the amount of coal consumed.

As heretofore stated, chain grate stokers are used to fire the boilers. Up to a few months ago, each boiler was equipped with a different type link, which necessitated the carrying of a large stock of extra parts on hand at all times. Since then new patterns have been made, standardizing these links, and making them interchangeable with those used in any of the boilers. This will reduce the maintenance cost materially.

The coal is fed into the hoppers, which automatically distributes it evenly over the chain grates. A gate is provided, which can be raised or lowered, depending on the thickness of the bed of coals required. The chain grate is similar to an endless belt and is driven by a small upright steam engine, which can be op-

erated at any desired speed. As the coal enters the fire box, care is taken that it burns evenly.

A car load of coal is used each day to provide steam for the engine in our power plant, ice plant, and boiler house. Steam is used for cooking, heating, industrial purposes, in our knitting mills, clothing factory, tobacco factory, laundries, and for supplying hot water for the entire institution.

All in all, we have a very modern and up to date steam generating plant. Its importance to the institution can only be realized when we consider that materially contributes to practically all of our daily needs. About fifty men are

assigned to the Boiler House working in eight hour shifts. This assignment affords a most excellent opportunity for men to learn a useful trade in the various phases of boiler room work.

Under the efficient and capable supervision of Captains Ryan and Kenner, this unit is functioning smoothly and doing all the important work cut out for it.

In addition to the boilers located within the prison, we have boilers at the slaughter house, pasteurizing plant, and farm dormitory.

In the next issue we will attempt to give our readers an interesting story of our Electric Light and Power Plant.

MENARD LIGHT AND POWER PLANT

Efficiently Operated At Low Cost

By Frank J. Geppert, Master Mechanic

Before conducting our readers on a tour of our modern Light and Power Plant, we deem it proper to briefly review the historical evolution of artificial light.

The earliest known form of "man-made" light was the camp fire of the Stone Age, and that crude and unsatisfactory means of illumination sufficed for a great many centuries. Our own immortal Abraham Lincoln depended on this primitive method of producing sufficient light to pursue his study of law, and is pictured at his studies, in the evening, in the glow of the log fire.

The first machine for the generating of electricity was built by Otto Von Guericke, in the year A. D. 1650. One hundred years later, Francis Hawksbee was able to produce light with a similar machine. His accomplishment never progressed beyond the experimental stage. Some five years earlier, Von Kliest had invented the so called "Leyden Jar." Later our own Benjamin Franklin experimented extensively in this field, using the Leyden Jar as a basic start, finally proving conclusively that lightening is electricity.

The dynamo was invented in 1831, by a poor and obscure bookbinder, by the name of Michael Farraday, who after years of experimentation, was successful in staging a practical demonstration of arc illumination in 1858. This achievement indeliably registers him as one of the foremost developers of electric lighting.

About this time there appeared in the field a young man of inventive turn of

mind, one whom the whole world now refers to as the electrical wizard, Thos. Edison, who began experimenting extensively along the lines developed by Farraday, soon proving to his own satisfaction that the Arc Light was not the ideal illuminant, henceforth directing his efforts toward producing an incandescent light, which was accomplished in the year 1879. Basic patents were issued Edison covering this invention in April of that year. This lamp, the use of which has become universal, is generally accepted to be Edison's greatest contribution to the scientific field of progress. In all cities of the world, today, the sight of great power producing plants, belching forth their smoke, is accepted as a perpetual tribute to the world's foremost inventor.

Edison was undoubtedly one of our very greatest inventors, and we accept him as such, however we must not overlook the fact that there were many other men, who worked untiringly in the development of the electric light and kindred equipment, and they too are entitled to acclaim.

For over twenty years, the writer has been associated with Theodore F. Philippi, a resident of East St. Louis, Ill., and an inventor, whose father, also an inventor, was accredited with the development, manufacture, and installation of the equipment used in the first electrically lighted building in the city of St. Louis, Mo., when he lighted the Tony Faust saloon, in the old Southern Hotel, more than fifty years ago. This

created quite a sensation at the time, and was front page news for the St. Louis newspapers for quite a while.

Here at Menard, we are in a position to gauge, to a certain extent, the enormous amount of mental energy, and untiring effort required in developing electric energy to the point it has reached today, when viewing our own Power Plant. This unit is considered, by the mechanical department, the heart of the institution, being the source of energy used in producing light, power, etc., necessary for the mechanical operation of all prison utilities.

Our plant was installed in the year of 1911, and considered at that time to be the latest and most improved type available. Two Ideal, single type engines, installed at that time, were capable of developing 600 H. P. with a generating capacity of 400 K. W. This was of ample size to provide for the needs of the institution at the time, however as the population of the prison increased it became necessary to enlarge the capacity of the plant. A new Chuse engine was purchased. This was a huge machine, of the cross compound type, 750 H. P. capable of producing a maximum 540 K. W. Even with this additional engine, the prison soon grew to such a point that the plant proved inadequate, and another engine was purchased. This, too, was a Chuse, although a single type, with a capacity of 100 K. W.

After the installation of the later engine, it was decided to divide the plant into two separate units—two A. C. and two D. C., this permits more efficient operation. This brings us down to the present.

On entering the engine room, from the street, one is confronted by a maze of machinery, or at least the average person would be so impressed. In fact, there are only two engines occupying this room, which is the alternating current unit of the plant; also the generators and A. C. switchboard is located

here. This unit supplies the power for the Chester Pump House, the laundries, rock crusher, dust mills and lights, etc.

The large Chuse engine operates only when the rock crusher and dust mills are operating, handling the load necessary for the operation of these industries, while the small Chuse serves in an auxiliary capacity.

The large Chuse engine utilizes the greater part of the steam supplied to it from the boiler house. It, being a compound type, the exhaust from one cylinder passes into another and then repeats the operation over again. From the second cylinder the exhaust passes into a pipe line, leading into the water heaters, thus making use of the steam from the time it leaves the boiler until it expends itself in the water heaters.

This engine has been in operation for approximately sixteen years, without once being overhauled, and had operated continuously, with exception of a few unavoidable break-downs, for this entire period. This is really an exceptional record, when the probable useful life of a high speed engine of this type is fifteen years. Within the next few weeks this engine will have its cylinders and valves rebored, which when done, will put it back into almost the same condition as when new.

During 1934, oil pumps and filter tanks were affixed to each of our engines, thus reducing the oil consumption to half the amount formerly required, without interfering with the lubrication requirements. These pumps force the oil from the crank pits up into the filter tanks, where it is filtered, thence flowing back into the crank pits, after playing over the main bearings. This equipment was entirely constructed with salvaged material and entailed not a cent of cost.

We next visit the A. C. switchboard, upon which is mounted the various switches, indicators, etc., enabling the engineer in charge, at a glance, to know

the amount of current his generators is producing, also the amount being used. This board is modern in every respect, and is one of safety type, no switches of high voltage being exposed.

Passing from the A. C. department into the room housing the D. C. unit, we find the old veterans of the plant—the two Ideal engines which were installed in the year 1911. This unit supplies the current for the inside crusher; the Menard pumps; Illinois Security Hospital, etc., these two engines and generators are in constant service day and night. In this room is also located the D. C. switchboard, which is of the old type, made of marble panel. Its switches are the old copper blade type, and the board is covered with them, each industrial unit connected with this unit has its own individual switch.

The engines in this department are of the single type, and unlike the Chuse engine, which are equipped with Corliss valves, use the old type slide piston valves. The exhaust from these engines is also utilized in contributing to the heating system, and the condensate is used in the manufacture of ice.

Very little waste is prevalent in the entire plant. The waste oil from the rods and crank pits is filtered and used

for lubricating lathes and other machinery in the machine shop. Repairs are also kept at a minimum and as a result of the efficient co-operation between the plant and the boiler house, we are producing electrical energy at a cost of .0115 per K. W. hr. We have again reached the limit of our present capacity, due to increase in population, so in the very near future it will be necessary to install a new generator, of at least 500 K. W. capacity. Our present peak load is reaching the danger point.

Eight men, working in three eight hour shifts, comprise the staff of the power plant. These assignments are much sought after among the inmates of the prison, as they provide a most excellent opportunity for those possessed with mechanical inclination, to better prepare themselves for the time when they are released.

In conclusion, it is our wish to direct the attention of the inmates of the institution to the fact that there are approximately 200 jobs in the Mechanical Department, affording excellent opportunities to learn some phase of a useful trade. The jobs can be procured and held only by men who prove their willingness to co-operate.

MENARD ICE AND COLD STORAGE

New Plant Under Construction

By Frank J. Geppert, Master Mechanic

In this issue of the "Menard Time," the imaginary tour of the various units comprising the mechanical department of this institution, which has been conducted by this writer, will be brought to an end, after first visiting the Ice Plant and Cold Storage Department, and explaining its operation. Our readers will have then visited every department having anything to do with the mechanical operation of the prison.

In preceding issues, prior to visiting any department, a brief history of that particular industry was given, so that the reader would better understand its operation. This is not easy to do in the present instance, as history is vague and the records very incomplete; in the matter of just when the cooling qualities of ice was first utilized by man. It is presumed that natural ice has been in existence since the creation of the earth.

Modern refrigeration is a development of the Mechanical Age, and is an industry of large proportion. It is, even now in its infancy. Artificial ice making and direct cooling without ice is a comparatively recent development. For many years ice box refrigeration was supplied solely by the utilization of natural ice, taken from the frozen surfaces of ponds, lakes, rivers, etc., and stored in buildings called "ice houses."

Natural ice was first used in the American home in the year 1802. Since that time the use of this natural refrigerant has reached enormous proportion. The annual harvest of natural ice, at this time is approximately 15,000,000

tons, in the United States, which added to 45,000,000 tons of artificial ice, which is manufactured each year gives one an understanding of the scope of this industry.

The fundamentals of refrigeration were first discovered about 1820, it was not until some 12 years later that a mechanical device was invented by Jacob Perkins, of Massachusetts, using ether as a refrigerant. The industry has gone far since that time.

Quite a number of years ago, an ice plant and cold storage was installed at this institution, having a capacity adequate to supply the needs of a population of some 1,500 inmates. It was quite modern, and was expected to suffice for a great many years to come. Since its installation the population of the prison has approximately doubled, and for the past two years, has been entirely inadequate to meet the demands of the institution.

Last summer the situation became acute, and for a while it was feared that the system would fail, which would have brought on a serious situation, in that it would have been impossible to preserve the large quantities of perishable food-stuffs that are constantly carried in stock. So as to eliminate this precarious situation, Warden Ragan, in submitting a list of needed improvements to the current session of the State Legislature, for their consideration, topped the list with a recommendation that a new ice plant and cold storage plant be installed at this institution. The need of which was so ap-

parent, and the Warden's recommendation so urgent, that Director of Public Welfare, A. L. Bowen, realizing that delay would be fatal, granted permission for the immediate installation of the recommended unit, eliminating the necessity of waiting legislative action.

At the direction of Director Bowen, the Division of Architecture and Engineering immediately drafted plans and specifications for a new ten ton ice plant and cold storage, in accordance with recommendations submitted by the mechanical department of this institution.

In view of the fact that this new plant is now under construction, and in a few months will be in operation, we will pass up our visit to the old plant, and in its place, give our readers a description of the new plant.

The actual construction of this new unit is under the direction and supervision of Mr. Theodore Raab, Superintendent of Construction, who supervised the construction of the new hospital, the renovation of the North Cell House, the building of the dining room in the lower yard, and other projects.

The new plant is to be housed in a one story, fire proof brick building 72 ft. wide and 160 ft. deep; and is to be located immediately adjacent to the Machine Shop. The cold storage is so arranged that there will be but one entrance, and this will be through the office. In this office will be a screened partition, separating a modern lavatory from the office space to be used by the officer in charge, and his clerks. A large hall, 12 ft. wide, will extend through the center of the building, with storage rooms arranged along each side with doors opening into the hall. The hall will be spacious enough to permit the meats and other food-stuffs being delivered directly to the rooms, via trucks. A dial platform scale will be installed in the area-way between the large door leading from the main prison street, and the door opening to the cold

storage rooms.

All freshly slaughtered carcasses are brought directly from the slaughter house, which is located outside the prison walls, to the new cold storage plant, and placed in a large "chill room," where a temperature of 50 degrees is maintained. They are first suspended from hooks attached to a moveable conveyor, and then dissected into standard cuts by the butchers, and transferred to the coolers, located on the opposite side of the hall. A temperature of 5 to 25 degrees will be maintained in these coolers. There will also be rooms for storing fruit, eggs, butter, etc., with temperature controls, adjusted so that exactly the right temperature shall be maintained at all times. Space for a sausage and lard rendering department will be provided, in which the entire prison supply of sausage and lard will be made.

In preparing specifications for this cold storage plant, particular attention was given the matter of assuring proper insulation, as upon this feature depends the successful operation of a cold storage plant, consequently the entire interior will be cork insulated. This will add materially to the cost, but in the long run will prove economical.

The new ice plant will differ in many respects from our present one; instead of a steam driven compressor, there will be several compressors all operated by electricity; raw filtered water instead of distilled will be used. A cooling tower will be installed on the roof of the plant, so that all the water used in cooling the coils can be used over and over again, quite different from the process in operation at the old plant, which allows most of this water to flow into the sewer, being wasted.

All equipment, such as traveling cranes, ice dumps, etc., will be of the latest design. The ice storage will be adjacent to the ice field, and will have a floor level sufficient in area to accomo-

date our motor trucks. It will have a storage capacity of 200,000 lbs., and produce ten tons of ice daily. This is just double the capacity of our present plant.

As previously stated, actual construction of this plant is now under way, for the past several days the "Hill" gang has been excavating preparatory to laying the foundation, and it is expected that the entire unit will be completed in the early part of the coming summer.

The Ice Plant and Cold Storage is just another unit in the mechanical department of the prison, under the direct supervision of the Master Mechanic, in which it is possible for the inmates as-

signed for duty there, are provided an opportunity to learn something that may be of real value to them, when released.

Each of the 200 inmates assigned to the Mechanical Department will find it to their advantage to interest themselves in their jobs. No matter what the length of their sentence; there is always a certain amount of "kick" to be experienced, in doing a job right. They are asked to familiarize themselves with their tasks, do the best they know how, protect the interest of the department, attend to their own affairs, and fair treatment will be theirs in return.

A Busy Year In The Mechanical Department *Much Accomplished With Minimum Expense* Prison Presents Improved Appearance

By Frank J. Geppert, Master Mechanic

As our State of Illinois enters its 59th. biennial, I believe it a most opportune time to review the activities of the Mechanical Department during the past fiscal year, and am of the opinion that the readers of the MENARD TIME would be interested in being informed as to just what has been accomplished in the way of construction and improvement.

Before launching into the story of the actual accomplishments of this department, our readers should be made to understand the paramount thought utmost in the minds of all of us here at Menard, and that is expressed in the single word "ECONOMY." We all remember the campaign promises of Governor Horner with reference to a proposed economical administration; all of us are impressed with the wonderful improvement in the capital structure of our State, as the ship of State is launched on its third annual cruise with Governor Henry Horner at the helm. Of course, we all know that the Governor is solely charged with the responsibility of administration, however, we also know, that a record of accomplishment, such as disclosed in reviewing the past two years, would have been impossible, had not our chief executive surrounded himself with capable men, imbued with the desire to provide the citizens of our State with an honest, efficient, and economical administration.

Here, in Menard, we have a city within itself, operating all of its utili-

ties, independent of outside source of supply and grouped into a single compact organization. There was special need to be careful in the selection of the proper person to serve as administrator. Governor Horner, in his wisdom, saw fit to appoint Jos. E. Ragen, of Carlyle, Clinton County, Illinois, Warden of this institution, later elevating him to the rank of Supt. of Prisons for the entire State.

All of us, attached to the prison staff, and others who have had the opportunity of visiting Menard, cannot help being impressed with the decided improvement noticeable on every hand in and about the prison. Under Warden Ragen's direction building and equipment have been modernized, reconditioned, and generally improved, without for one moment deviating from a course of strict economy.

We, of the Mechanical Department, probably realize better than anyone else, the resourcefulness of our Warden in accomplishing much, with small outlay of expense. We are proud of the part we have been able to play in the general scheme of things, and consider ourselves fortunate in being able to work under the capable leadership of Warden Ragan. We understand him, know what he wants and how he wants it done, and are careful to make no recommendations or incur any expenses whatsoever, unless it is absolutely necessary for the good of the institution. We must be convinced that every major

improvement contemplated will create a saving for the State. It is also realized that at all times it is necessary that our buildings and equipment must be kept in first class condition, if the economy program is to be followed one hundred per cent. We believe we know the difference between true and false economy.

Last year we generated 196,743,403 lbs. of steam. Went to the expense of designing and installing new stoker links in boilers, making them interchangeable, so as to eliminate the necessity of carrying large stocks of various kinds and types of links, also to improve combustion. We experimented with boiler feed water compound until we found one that would eliminate the scaling of boiler tubes; we stopped our air leaks at a total cost of less than \$1,000; all of this resulting in an actual saving of \$4,784.45 in fuel costs over the preceding year, and increased efficiency in steam production. In addition to the economy improvements just set forth, we reduced our maintenance cost, and increased the life of the equipment in our power plant. On each of our engines oil filters were installed. These were made here at the prison from salvaged material, and immediately after their installation our consumption was reduced fifty per cent.

Our large 700 H.P. Cross Compound engine generator set had its cylinders and valves rebored and fitted with new piston valves and valve gear. These repairs will pay for themselves in a very short time, in the saving of steam, and at the same time increase their efficiency in generating electricity.

We have installed a ventilator in the roof of our power plant, greatly reducing the extreme high temperature formerly prevalent in this department, adding much to the comfort of the men assigned to work there, and naturally increasing their efficiency.

All of the windows and doors of the

engine room were screened with heavy wire netting in order to make this plant private, and at the same time effecting quite a saving in window glass.

A new Hot Well was recommended by the Mechanical Department to take care of the return condensate from the steam lines and a vacuum pump was installed to create greater efficiency in the heating system; this project was constructed by the Division of Architecture and Engineering.

The interior of both the power house and the boiler room has been improved to the extent that the Inspector for the Hartford Steam Boiler Inspection and Insurance Company, after a recent inspection, reported "THE STANDARD OF OPERATION AND GENERAL CLEANLINESS MAINTAINED IN THIS PLANT IS COMMENDABLE." These improved conditions are largely due to the untiring efforts of Captains Ryan and Kenner and the inmates assigned to this department.

Other improvements are as follows: Erected two new hog houses at Fern Valley (Farm), both of brick construction, one of which has a wood roof and the other is concrete. This Building will shelter 800 hogs and has a second floor for feed storage. Constructed two concrete dipping troughs at Farm. Salvage material was used.

Completely rebuilt frame house at Ft. Gage (Farm).

Constructed two Cold Beds for the farm. These were made of salvaged brick and are about 200 feet long.

Erected a Garden and Packing Shed at Fern Valley (Farm). All salvaged material.

Erected a forty foot brick, circular guard tower in the stockade, and installed a large searchlight thereon. Brick made at Prison.

Installed a new 2,500 ft. water main, leading out to the hog house, at Fern Valley.

Installed complete plumbing facili-

ties in the re-built frame residence at Ft. Gage. This building is being used to house the small detail of inmates stationed there. Salvaged material used.

Completely over-hauled and enlarged the plumbing facilities in the large, two story residence, used as sleeping quarters for the night guards; also installed a modern bath room, with all fixtures complete.

Vacuum and steam return pipe facilities installed in the new Hot Well, at the power plant, caring for the new vacuum pump and the two condensation pumps installed therein. This hot well has greatly increased the efficiency of all high and low pressure steam units in the institution.

Heating and plumbing facilities in the yard building, which houses the Deputy Warden's office and the Bertillion office, were completely re-arranged, greatly increasing the efficiency of same.

Two used 80 gal. aluminum steam cooking kettles and one 100 gal. coffee urn was installed in the con kitchen, in the lower yard. Each of these are individually operated, supplied with hot and cold water, and have steam supply. These kettles were received on a transfer from another institution and reconditioned in our shop.

Heating and plumbing facilities were provided for the old Hospital which is being used as temporary quarters for inmates while the yard dormitory is being renovated. All salvaged material was used.

Extension of our water supply, by laying 3" C. I. extra heavy pipe to the new cold storage and ice plant, which is now under construction. This installation consisted almost entirely of salvaged material.

Installed toilet facilities in the inside garage.

Heating and Plumbing facilities installed in the New Tobacco House and

Band Studio.

Overflow, drain, and sprinkler pipe installed for yard fountain and rock garden. Only salvaged material was used on this job.

A new 100 gal. steam cooking kettle, with complete steam facilities, was installed in the New Tobacco House.

Drain and water supply lines installed for one trough type toilet, located on the athletic field.

All exposed pipe lines, in all ducts and tunnels, were covered with magnesium and fibrous pipe covering, so as to prevent heat loss and corrosion. Approximately 1200 ft. of these lines were covered.

The institution telephone system has been improved and extended, now being seventy-five drop capacity, an increase of 25 drops. 13 new telephones and service drops were installed. Some 3000 ft. of messenger wire and 2600 ft. lead cable, with necessary cable hangers, were used in re-building the system. Eight new service boxes were installed.

The following buildings were completely wired throughout, providing electric facilities, viz: Band room, tobacco plant, storage house, and the yard dormitory were wired so as to include this building in the hookup of the institution public address system.

The electric chair was removed to the new execution chambers, and set up. Of course the chambers itself had to be completely wired.

The renovated Yard Office and Bertillion quarters were re-wired, as was also the Clothing House, Machine Shop and Barber Shop.

Twelve new street lights were added to the institution system.

Laundry No. 2 was completely wired for electricity and five motors installed, so as to provide power for motor driven machinery.

The Greenhouse and Oil House, both located outside the stockade, were

wired for electricity.

The Night Guards Dormitory was re-wired.

New service lines were installed for Power, Light and Telephones for the North Cell House. Six new telephones, 5 motors, 5 h.p. each, and 35 KW lights provided with service.

New motors were installed in the following named locations, viz: Cold Storage, Lard Room, Printing Plant, Chester Pump House, Clothing House, Boiler House and Electric Welder.

The following enumerated motors were re-wound in the electrical shop, viz: one 10 H.P. for electric welder, one 3 H.P. for Jointer, one $7\frac{1}{2}$ H.P. for Planer, one 1 H.P. for potato peeler in kitchen, five $\frac{1}{8}$ H.P. for fans, one $\frac{1}{4}$ H.P. for Coffee Grinder, also one $\frac{1}{2}$ H.P. for same, and one $\frac{1}{6}$ H.P. for Security Hospital, also one $\frac{1}{2}$ H.P. for same, and one $\frac{3}{4}$ H.P. for Frigidaire (Warden's Kitchen).

Installed new pump at Chester Pump House; overhauled locomotive for stone industry railroad; patched boiler, reinforced smokestack, and overhauled valves at Ill. Security Hospital; placed new doors on boilers Nos. One and Two; installed new filter pumps on all engines; overhauled all three compressors; installed V belts and pulleys for cornsheller at Farm; made new bearing for both small and large Chuse engines; new crank pin on large chuse engine; overhauled both brine pumps in ice plant; installed new pumps in hot well at boiler house; installed new plungers in feed water pump at boiler house; new tobacco cutter and boxes for new tobacco plant; installed two printing presses for printing plant; installed several new sewing machines in clothing house; installed new manhole covers for steam ducts; made and installed new dish-washer in officers kitchen.

Purchased and installed complete railway system for inside quarry for purpose of removing dirt from inside

quarry, thereby eliminating the use of auto trucks and greatly facilitating the removal of dirt.

This equipment all second hand was purchased from an Illinois Road Contractor at a sacrifice price.

Repainted the main dining room.

Built Stake body for new auto truck.

Completely renovated Farm Dormitory.

Erected a 250 ft. overhead trestle at outside crusher. This was constructed of almost entirely salvaged materials.

Put new roof on school, library, and printshop building.

Four second hand ranges (stoves) completely rebuilt, and then set them up in the inmate dining room: also built new canopies for each of these re-conditioned ranges.

Built office for Criminologist.

The following mentioned articles of furniture was built in the cabinet shop of this department, viz: Desk and furniture for Hospital; desk for Bertillion office and cabinet for same; large filing cabinet for Record Office; tables, chairs and numerous other articles.

Constructed two dams—one on river road, and one out at Fern Valley.

Erected a new warehouse, brick and concrete construction (fire proof).

Repainted all of the officers residences.

Built concrete slab entrance through No. 1 Gate.

Arranged office for Condemnation Quarters, putting in necessary partitions, etc..

Put a new roof on Cow Barn out at Fort Gage (Farm).

Built office in North Cell House.

Put new roof on Rag House, inside stockade.

Put new roof on Hog House No. 1 (Farm).

Built office in South Cell House.

Power, lights, ice and water furnished the Illinois Security Hospital, by this institution, through the Mechanical De-

partment.

No attempt has been made in this article to enumerate the daily general repair and maintenance jobs done by the Mechanical Department. Space allotted us does not permit us to even begin to describe all the work necessary in the mechanical operation of this institution.

In conclusion, I wish to take this opportunity to express my sincere thanks to Warden Ragen for the pleasant co-operation he has accorded me at all times, it has been a real pleasure to work under his direction. I want to thank each and every officer, who has worked under my supervision the past year, for it has been through their loyal support and untiring efforts that has enabled me to carry out Warden Ragen's plans to a successful conclusion. I also want to thank the 200 or more inmates assigned to this department, for after all, these are the men who actually performed the work which has so improved and beautified the prison. It has been interesting to note the real interest these men have taken in doing their jobs right and economically. Cleanliness, order, fair treatment, and discipline has improved their morale to a point where the department really has a cheerful aspect, if such a condition can really exist in a prison.

I trust that the coming year, in which we hope to make still further improvements, will be as successful as the one just passed. I assure all inmates in my department, desirous of preparing themselves for their return to society, that I will lend every effort toward assisting them. Any of the mechanical or building trades can be learned in this department. Our library will provide such technical books needed, and everyone will be given cheerful assistance in their efforts to better themselves, and fair treatment will always be accorded to those who want it, and promotion to

those who deserve it.

When we review the activities of the past two years and compare conditions as they existed prior to that time, with those that now exist, one can appreciate the progress that has been made. These favorable changes have been brought about through the resourcefulness, executive ability, and untiring efforts of Warden Ragen, who has at all times created the incentive for the rest of us to carry on toward the goal he has set for us, and it is being done along the lines of economy, cleanliness, order, fair treatment, and discipline.

In conclusion, I deem it proper to furnish our readers with the names of the officers assigned to the mechanical operations of the institution, and the departments they have charge of, viz: Capt. Oscar Marquardt is the chief Electrician, having charge of the electrical operation and maintenance of the institution; Capt. Marvin White is our Machinist and responsible for the mechanical operations and maintenance; Capt. Clint Davis is the Plumber and responsible for the maintenance of the heating, water & sewage system; Capt. William Knowles is our Carpenter and in charge of all carpentry done here by the prison; Capt. Joe Mongan is the Mason & Bricklayer in charge of all such work; Capt. W. C. Jacobs is in charge of our general shop, in which more than 75 men are assigned, and Capt. Francis Bleen handles the various labor details within the department; Captains Pat Ryan and Chas. Kenner are the officers in charge of our engine room and boiler house, Capt. Ryan on duty in daytime, and Capt. Kenner working nights. At various times, our regular staff is supplemented by other officers, this is specially true when an emergency exists and larger details are working.

MECHANICAL DEPARTMENT

Frank J. Geppert,	Master Mechanic
Oscar Marquardt,	Chief Electrician
Marvin White,	Chief Machinist
William Knowles,	Chief Carpenter
Clint Davis,	Chief Plumber
Jos. M. Mongan,	Chief Mason
Walter C. Jacobs,	Shop Foreman
Pat. E. Ryan,	Boiler House Foreman
Chas. C. Kenner,	Boiler House Foreman
Francis B. Bleem	Labor Foreman

DIVISION OF ARCHITECTURE AND

ENGINEERING (MENARD)

Theo. H. Raab,	Supt. of Construction
B. G. Fridli,	Carpenter Foreman
Omar Tompson,	Utility Man
Chris Rowekamp,	Industrial Supt.
M. B. Stokes,	Labor Foreman
Guy Young,	Labor Foreman

MANUFACTURING INDUSTRIES

(CLOTHING)

Bertie E. Lancaster,	Supt. Tailor Shop
James W. McGill,	Supt. Cutting&Designing
Ralph L. Berryman,	Shop Foreman
Charles T. Braham,	Shop Foreman

KNITTING

Claudius L. Randolph,	Superintendent
Henry Knipping,	Shop Foreman
Berhlin E. Dameron,	Shop Foreman

QUARRIES

Jessie A. Reece,	Superintendent
C. B. Hauskins,	Asst. Supt.
Elmer E. Fitzgearld	Crusher Foreman
Sidney J. Rendleman,	Crusher Foreman

TOBACCO SHOP

John S. Ritter,	Superintendent
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HIGHWAY MARKER

Ernest Dudenbostle,	Superintendent
Edward J. Grady,	Shop Foreman

FARMS-GARDENS-DAIRIES

Phillip N. Lewis,	Superintendent
William McDonald,	Gardener
James Sanders,	Dairyman
Floyd Meyer,	Poultryman
Harry Orrell,	Team Foreman
Parker Saul,	Labor Foreman
Edward Zeller,	Labor Foreman
Frank Davidson,	Dormitory Custodian
Clifton Angel,	Green House and Lawn

KITCHEN AND DINING HALL

L. A. Karcher,	Steward
A. M. Piosik,	Psychiatric Dining Room&Kitchen
Ernest Sanders,	Officers Dining Room&Kitchen
C. R. Bradley,	Inmate's Dining Hall
E. J. Tanney,	Kitchen Foreman (Nights)

VEGETABLE HOUSE AND COLD STORAGE

Andrew W. Carico,	In Charge
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GENERAL STORE

Patrick J. Bann, Jr.	Store Keeper
James W. Neenan,	Assistant

INMATE'S COMMISSARY

W. C. Carter,	In Charge
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LAUNDRIES

Joe Schlueter,	Foreman-Inmate's Laundry
Martin J. Vanicek,	Foreman-Officer's Laundry

CLOTHING DISTRIBUTION

Carl Brush,	In Charge
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CONDEMNATION OFFICE

Charles V. Coulter,	Superintendent
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SHIPPING OFFICE

James N. Brown,	Superintendent
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BARBER SHOP

Clinton Wiley,	Superintendent
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PRISON SCHOOL

James O. Carwell,	Superintendent
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PRISON BAND

Robert J. McKee,	Director
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CELL HOUSES AND DORMITORIES

EAST CELL HOUSE

John D. Daniels	In Charge
Bennett Cheatham	Assistant
Hiran J. Siddens	Assistant
Wm. E. Donahue	Assistant
Frank J. Vogt	Assistant

SOUTH CELL HOUSE

Osmon Haile	In Charge
Willis M. King	Assistant
Jesse L. Fatheree	Assistant
Richard F. Probst	Assistant
H. W. Bell	Assistant

INSIDE DORMITORY

William J. Kelly	Keeper
James L. Murphy	Keeper
George W. Clifton	Keeper
Stanley Jakuboski	Keeper
Fritz Schweir	Keeper

PSYCHIATRIC DIVISION

W. Lawson Payne	Captain in Charge
John Ebert	H. Sulpe
A. W. Tennis	M. McGary
B. L. Gerhart	G. Pinkstaff
I. B. Walker	J. R. Adams
H. A. Carey	L. E. Weller
E. E. Hoover	R. Hunsacker
C. DLashmutt	A. G. Bruns
R. L. James	J. McCook
C. Broadway	J. E. Atkinson
F. Finazzo	J. N. Eaton

CAPTAINS

Millard A. Ruddell	Chief Guard
William O. Morris	Night Captain
Lawrence Krebs	Captain
Geo. W. Asquith	Captain
Thomas E. Smart	Captain
Roy W. Harris	Captain
Mark A. McCarthy	Captain
Moody F. Gray	Captain

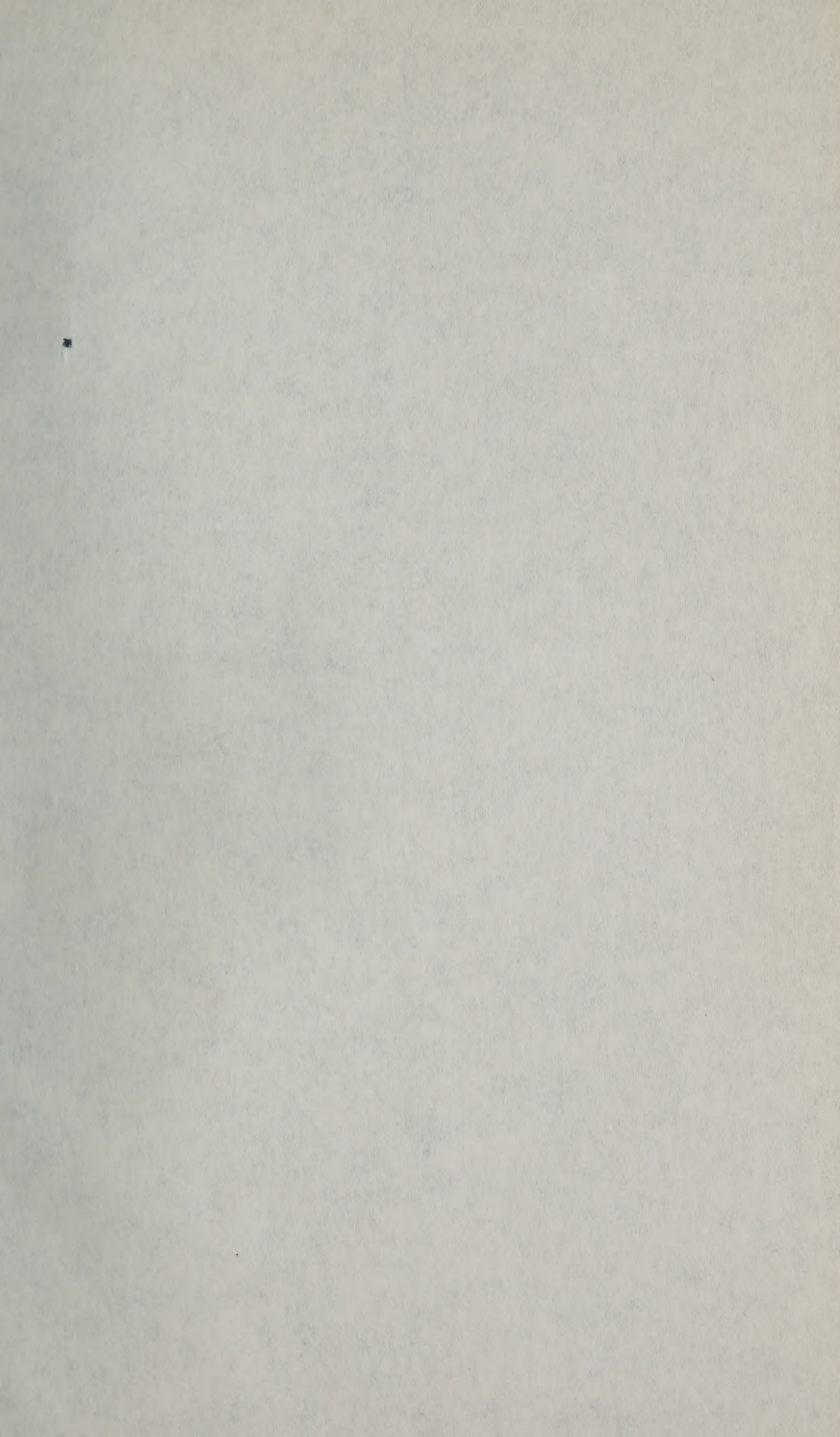
GUARDS

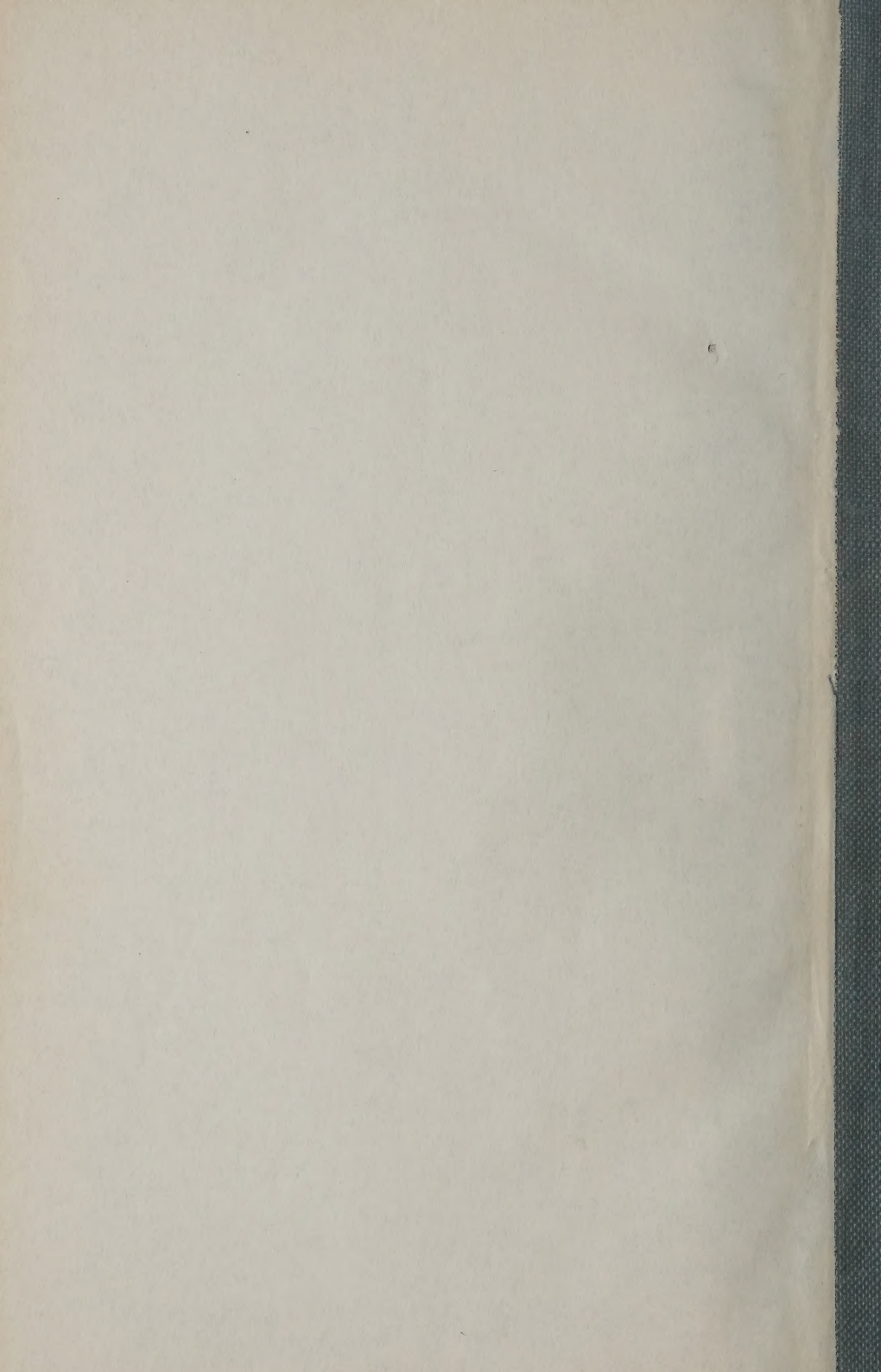
W. A. Adams	W. G. Adkins
G. E. Albert	C. A. Barnes
L. S. Eevirt	G. W. Bince
Carl Bode	H. D. Canterbury
J. L. Carey	R. M. Castle
Edmund Cashman	Hugh Cooney
P. C. Cox	Tom Crombar
S. G. Crunk	H. W. Darley
B. E. Daugherty	B. A. Davenport
Cecil Fitzjerrells	R. E. Fulton
David Furlow	H. L. Garrett
C. C. Carroll	L. E. Griffen
Edw. Groene	A. O. Halblieb
R. A. Haller	C. F. Hanner
W. C. Hirte	E. B. Hitch
Alfred Hoffman	Ray Huddleston
Otis Hudson	D. R. Huggins
R. L. James	G. F. Kaiser
T. J. Karushis	Fred Keen
J. J. Kelly	C. C. Kiefer
Frank Klinger	Carl Lauderdale
Cornell Lengerfelder	H. C. McQueen
M. J. Mendell	Roy Moore
C. W. Nipper	Gus Norton
R. L. Osborn	Everett Pierson
J. S. Rushing	Lorraine Schumacher
D. A. Smith	J. B. Smith
P. E. Smith	Mark Surman
T. B. Thomasson	R. W. Travers
H. F. Vahle	A. J. Vanderbeke
M. D. Walberg	I. D. Walker
Earl Wasson	Morris Webb
L. E. Weller	Raymond Wiehm
C. H. Weisbecker	Leo Zgonina
R. S. Gordon	Guy Graham
Theo. Haar	H. E. Hudspeth
N. J. Kabat	Joseph Klaudel
W. C. Lemming	Herman Marshall
G. W. Smith	Walter Weatherford
W. J. Barrett	Bryan Huffmaster
Ralph Hurley	L. L. Rodman
C. B. Keller	A. B. Jackson

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Mechanical operation of a prison : progr



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